

ABSTRACT OF THE DISCLOSURE

The present invention is a multi-stage detection algorithm using a successive nodule candidate refinement approach. The detection algorithm involves four major steps. First, the lung region is segmented from a whole lung CT scan. This is followed by a hypothesis generation stage in which nodule candidate locations are identified from the lung region. In the third stage, nodule candidate sub-images pass through a streaking artifact removal process. The nodule candidates are then successively refined using a sequence of filters of increasing complexity. A first filter uses attachment area information to remove vessels and large vessel bifurcation points from the nodule candidate list. A second filter removes small bifurcation points. The invention also improves the consistency of nodule segmentations. This invention uses rigid-body registration, histogram-matching, and a rule-based adjustment system to remove missegmented voxels between two segmentations of the same nodule at different times.